REMARKS

In an Office Action dated June 24, 2005, the Examiner rejected claims 1 and 18 under 35 U.S.C. §103(a) as being unpatentable over Armitage (U.S. patent no. 6,374,303) in view of Wilford (U.S. patent no. 6,512,766). The Examiner rejected claims 2, 4-6, 8, and 19-22 under 35 U.S.C. §103(a) as being unpatentable over Armitage in view of Wilford and further in view of Chuah et al. (U.S. patent no. 6,735,190, hereinafter referred to as "Chuah"). The Examiner rejected claim 7 under 35 U.S.C. §103(a) as being unpatentable over Armitage in view of Wilford and further in view of Tappan (U.S. patent no. 5,991,300). The Examiner rejected claims 9-11 and 13-15 under 35 U.S.C. §103(a) as being unpatentable over Chuah in view of Veerina et al. (U.S. patent no. 6,243,373, hereinafter referred to as "Veerina"). The Examiner rejected claims 12 and 16-17 under 35 U.S.C. §103(a) as being unpatentable over Chuah in view of Veerina and further in view of Tappan. The Examiner rejected claims 23-25 under 35 U.S.C. §103(a) as being unpatentable over Tappan in view of Veerina. The rejections are traversed and reconsideration is hereby respectfully requested.

The Examiner rejected claims 1 and 18 under 35 U.S.C. §103(a) as being unpatentable over Armitage in view of Wilford. Claim 1, as amended, provides for determining an address label for each received data packet based on the data packet's routing address, wherein the address label provides one or more of network layer and transport layer routing information, and adding the address label determined for each received data packet to the data packet to produce a modified data packet. These features are not taught by Armitage or Wilford.

Armitage teaches a method and messaging for a distribution of Multi-Protocol address Label Switching (MPLS) labels. That is, as noted in the pending application, in order to improve data network capacity, particularly when low-speed links, such as T1/E1 lines, are involved, it was proposed to multiplex packets, such as IP/cUDP/PPP packets or IP/UDP/RTP packets, into a Frame Relay frame and wrap the multiplexed packets with an MPLS header. The multiple packets and new header, combined into a single frame, are transmitted to a destination node identified by the new header. One of ordinary skill in the art realizes, however, that in order to use an MPLS header, the network nodes must

understand the routing information included the header. Armitage then teaches a method of assuring that a switching node receiving a frame comprising an MPLS header supports MPLS and further teaches messaging that may be used to distribute the MPLS routing information to the MPLS-capable nodes.

With respect to an architecture of an IP/UDP protocol stack, the MPLS layer that applies the MPLS header was a new layer interposed between Layer 3, that is the internet layer or network layer, and Layer 2, that is, a sub-layer of the network interface layer or the link layer. The transport layer is the next layer up from the network layer. The network interface layer includes two sub-layers, known as Layer 1 and Layer 2. The MPLS layer is a third sub-layer of the network interface layer and includes a tag of 24 bits sitting between a Layer 2 header and upper layer headers, such as the network layer and transport layer headers, and is only link layer significant. MPLS was proposed by the Internet Engineering Task Force (IETF) for the purpose of switching data packets with some differentiating features by provide link layer routing for multiplexed data packets with a same IP header. As a result, the MPLS header provides link layer routing, not transport layer routing, and does not provide multiplexing functions when used with a point-to-point protocol (PPP).

Unlike an MPLS header, the address label of claim 1 provides one or more of network layer and transport layer routing information. Claim 1 then provides that data packets to which the claimed address labels have been added may then be multiplexed and wrapped with a header comprising link layer routing information, for example, an MPLS header. The address labels taught by claim 1 substitute for transport and network layer routing addresses, such as the IP and UDP headers, and are independent of the transport layer and network layer protocols. Thus, packets utilizing different transport layer and network layer protocols may be multiplexed over a PPP connection when using the address labels taught by claim 1. This cannot be achieved with a use of an MPLS header. In other words, in the prior art, the transport layer and network layer protocols applied to multiplexed packets must be the same, even when wrapping the packets with an MPLS header, for the multiplexed packets to be transported over a PPP connection. The use of the address labels taught by claim 1 overcomes this constraint.

Wilford merely teaches using a lookup table to retrieve routing information associated with an MPLS header. Wilford teaches nothing concerning use of address labels for transport layer and network layer routing. Therefore, neither Armitage nor Wilford, individually or in combination, teach the features of claim 1 of determining an address label for each received data packet based on the data packet's routing address, wherein the address label provides one or more of network layer and transport layer routing information, and adding the address label determined for each received data packet to the data packet to produce a modified data packet, which modified packets are then multiplexed and wrapped with a new data transmission header comprising link layer routing information. Accordingly, the applicants respectfully request that claim 1 may now be passed to allowance.

Since claims 2 and 4-8 depend upon allowable claim 1, the applicants respectfully request that claims 2 and 4-8 may now be passed to allowance.

Claim 18 teaches a data transmitting device having a processor that determines an address label for each received data packet based on the data packet's routing address, wherein the address label provides one or more of network layer and transport layer routing information, adds the address label determined for each received data packet to the data packet to produce a modified data packet, multiplexes the modified data packets, and wraps the multiplexed data packets with a new data transmission header comprising link layer routing information for the multiplexed data packets to produce a data transmission unit. As described in detail above, neither Armitage nor Wilford, individually or in combination, teach these features. Accordingly, the applicants respectfully request that claim 18 may be passed to allowance.

Since claims 19-22 depend upon allowable claim 18, the applicants respectfully request that claims 19-22 may now be passed to allowance.

The Examiner rejected claims 9-11 and 13-15 under 35 U.S.C. §103(a) as being unpatentable over Chuah in view of Veerina. Claim 9 has been amended to provide a method for point-to-point transmission of data including determining, by a data transmitting device, an address label for each received data packet based on the data

packet's routing address, wherein the address label provides one or more of network layer and transport layer routing information, adding, by the data transmitting device, the address label determined for each received data packet to the data packet to produce a modified data packet, multiplexing, by the data transmitting device, the modified data packets, and adding, by the data transmitting device, a data transmission header to the multiplexed data packets that includes link layer routing information for the multiplexed data packets to produce a data transmission unit. These features are not taught by Chuah or Veerina.

Chuah teaches a receipt, by a first Internet Telephony Server (ITS), of multiple data packets. Each data packet includes a destination Internet Protocol (DIP) address and a source Internet Protocol (SIP) address in its header. Based on the DIP and SIP of each data packet, the ITS then establishes an IP-to-IP tunnel with a second ITS and forwards the data packets to a first Label Switching Router (LSR) that is associated with the first ITS. The first LSR adds a Multi-Protocol Label Switching (MPLS) label to the header of each data packet and transmits the data packets, each including its own MPLS label, to a second LSR that is associated with the second ITS. As acknowledged by the Examiner, the added labels provide a Layer 2 switched packet flow.

Chuah further teaches that when each data packet of the multiple data packets is associated with a same SIP or DIP, the first LSR may convey an Advertisement message to the second LSR. The Advertisement message informs of the SIP and DIP of the data packets that will follow and further informs whether the packets will have their SIP and/or DIP removed. The first LSR then removes the common SIP or DIP from each data packet and, based on the received Advertisement message, the second LSR then adds the missing SIP or DIP to each received packet. Chuah also teaches that when each data packet of the multiple data packets is associated with a different SIP or DIP, the Advertisement message may include a list of SIPs or DIPs. The SIPs or DIPs are listed in the same order as an order of the sending of the data packets, and the second LSR then adds a missing SIP or DIP to each received data packet based on the order that the packets are received and the listed order of the SIPs or DIPs.

Chuah does not teach an adding of a label that corresponds to the removed SIP or DIP. The SIP or DIP is just removed altogether.

Veerina merely teaches a replacing of a first IP address of a data packet with a second IP address. Veerina teaches nothing concerning a use of address labels. Therefore, neither Chuah nor Veerina, individually or in combination, teach the features of claim 9 of determining, by a data transmitting device, an address label for each received data packet based on the data packet's routing address, wherein the address label provides one or more of network layer and transport layer routing information, adding, by the data transmitting device, the address label determined for each received data packet to the data packet to produce a modified data packet, which modified packets are then multiplexed and wrapped with a new data transmission header comprising link layer routing information. Accordingly, the applicants respectfully request that claim 9 may now be passed to allowance.

Since claims 10-17 depend upon allowable claim 9 the applicants respectfully request that claims 10-17 may now be passed to allowance.

The Examiner rejected claims 23-25 under 35 U.S.C. §103(a) as being unpatentable over Tappan in view of Veerina. Claim 23 teaches a receiving unit that receives the data transmission unit based on a link layer data transmission header that wraps the multiplexed data packets, wherein each data packet of the multiplexed data packets comprises an address label that provides one or more of network layer and transport layer routing information, and a processor coupled to the receiving unit that extracts a plurality of data packets from the data transmission unit, determines one or more of a network layer and a transport layer routing address for each data packet of the plurality of data packets based on the address label, and routes each data packet based on the data packet's determined routing address.

As noted above, Veerina does not teach a use of address labels. Tappan teaches a data packet that includes a destination address of a router to which the packet will be forwarded in a hop. When the router receives the data packet, the router determines a next router for a forwarding of the packet in a next hop by reference to a table. To speed

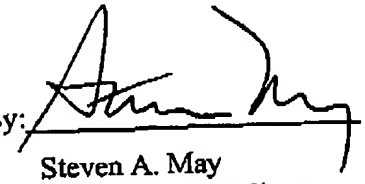
up the forwarding of the packet, Tappan teaches an insertion of a "shim" in the packet header between the link layer header and the network layer header (column 2, lines 38-41), such as an MPLS label (column 2, lines 55-61). This shim does not provide network layer or transport layer information and furthermore is intended for insertion in the link layer header of a transmission unit (e.g., an MPLS label) and not in a header of packet that is then multiplexed with other packets and wrapped with a link layer header.

Therefore, neither Tappan nor Veerina, individually or in combination, teach the features of claim 23 of receiving unit that receives the data transmission unit based on a link layer data transmission header that wraps the multiplexed data packets, wherein each data packet of the multiplexed data packets comprises an address label that provides one or more of network layer and transport layer routing information, and a processor coupled to the receiving unit that extracts a plurality of data packets from the data transmission unit, determines one or more of a network layer and a transport layer routing address for each data packet of the plurality of data packets based on the address label. Accordingly, the applicants respectfully request that claim 23 may now be passed to allowance.

Since claims 24-25 depend upon allowable claim 23, the applicants respectfully request that claims 24-25 may now be passed to allowance.

As the applicants have overcome all substantive rejections and objections given by the Examiner and have complied with all requests properly presented by the Examiner, the applicants contend that this Amendment, with the above discussion, overcomes the Examiner's objections to and rejections of the pending claims. Therefore, the applicants respectfully solicit allowance of the application. If the Examiner is of the opinion that any issues regarding the status of the claims remain after this response, the Examiner is invited to contact the undersigned representative to expedite resolution of the matter.

Respectfully submitted,
Dah-Lain Almon Tang et al.

By: 

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